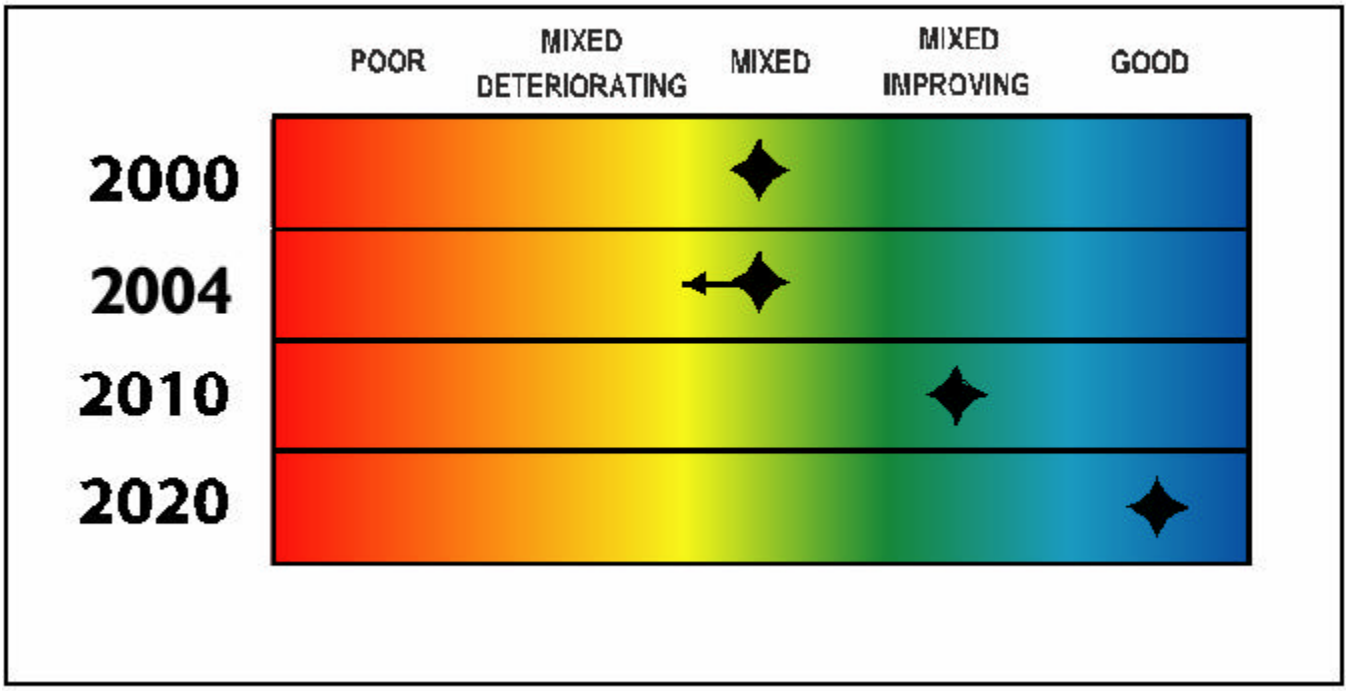
Subgoal 8
Are exotic species controlled and managed?*



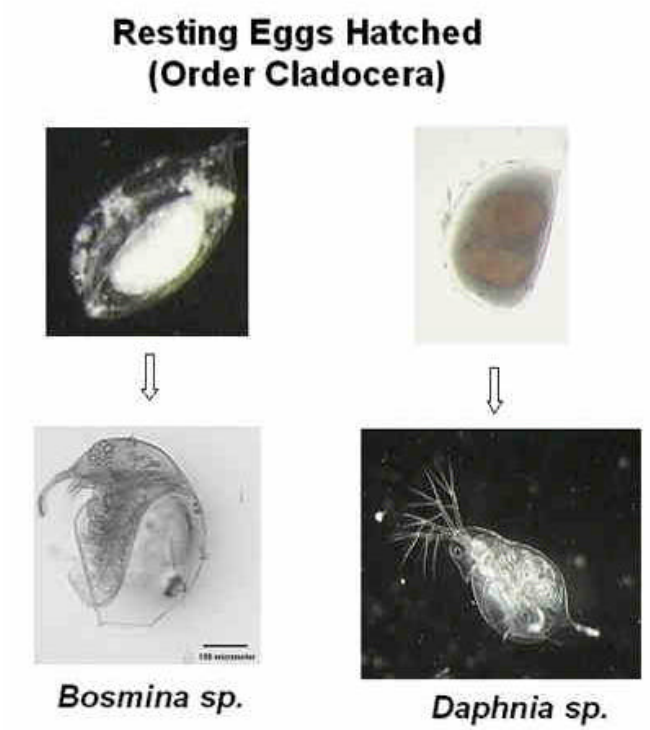
Status

The record of exotic species prevention and control in Lake Michigan is mixed. While there are success stories for the control of sea lamprey and the potential to prevent future introductions, zebra mussels and other new species continue to proliferate and are competing for food and habitat with native species. In the last 4 years, a new exotic, the spiney water flea, was introduced to Lake Michigan. Non-indigenous mussels are successfully competing with native species like the Diporeia, threatening the health of the entire Lake Michigan food chain. Furthermore, there is a danger that other new exotics, the bighead and silver carp from Asia, accidentally released into the Mississippi River, could enter Lake Michigan during the next few years through the Illinois River system. Currently, these carp are just outside the Lake Michigan system, at river mile 268 about 28 miles downstream of an electronic barrier in the Sanitary and Ship Canal. Until the trend for exotics is reversed, the status of this goal is mixed/deteriorating.

In the past year, the governments of Canada and the United States produced the fifth biennial report titled "State of the Great Lakes 2003". The report notes several negative signs of degradation regarding invasive species including the following:

- Non-native species are a significant threat to the ecosystem and continue to enter the Great Lakes.
- Scud (*Diporeia*) are continuing to decline in Lakes Ontario and Michigan.
- Native mussel species are being lost throughout Lake Erie and Lake St. Clair as a result of invasive zebra mussels.

*** In LaMP 2006, this chapter title is proposed to be revised to read "Are aquatic nuisance species prevented and controlled?" We invite comments on this proposed change.**



Example of invertebrate resting eggs (top row) and the organisms that hatched from them (bottom row) in lab cultures. Cladocera are small invertebrates (zooplankton). (image: Great Lakes NOBOB team, University of Windsor)

Lake Michigan, in particular, has suffered repeated invasions of aquatic nuisance species (ANS) which have seriously altered the native ecosystem. In recognition of the unique position of Lake Michigan as a receptor and pathway for continued invasions, the Lake Michigan LaMP has formed an ANS subcommittee to address these problems in this and future iterations of the LaMP. It is hoped that the new subcommittee will help facilitate communications between various national, regional and local entities involved in the prevention and control of ANS and help to highlight the special needs for the effort on Lake Michigan.

There have been several significant developments since the 2002 LaMP report including:

- European ruffe were discovered for the first time in Lake Michigan in 2002. A viable population of the perch sized fish have become established in Little and Big Bay de Noc in Northern Lake Michigan.
- Continued disruptions in the ecosystem of Lake Michigan, probably due to zebra mussel proliferation, have resulted in such phenomena as rampant *Cladophora* algae growth. This algae, which grows on the bottom of the lake, is uprooted and washes up in huge masses on Lake Michigan beaches resulting in unsightly and smelly messes more often in recent years. Recently, the algae has also become entangled in the nets of commercial fishers resulting in loss of revenue and threatening the livelihood of people who are already struggling due to ANS damage.
- Asian Carp continue to threaten Lake Michigan via the Chicago Sanitary and Ship Canal. A demonstration electric barrier has been installed to prevent migration into the lake. Federal and state funding for a second, permanent barrier has been secured for construction in 2004.

Challenge

- To develop a coordinated rapid response system
- To understand all pathways for introduction of unwanted species
- Education and engagement of the public on this issue
- Monitor international, national, and state developments

Scientist collecting mud from a NOBOB ballast tank (image NOAA).

The

The Lake Michigan Food Web. Diporeia, central in the diagram (p), was historically an important food for the fish on the second line in the red squares. They are the prey for the large predator fish like Salmon and Lake Trout at the top of the chart and food web in the purple squares. Non-native species are competing with, and possibly replacing the Diporeia in the Lake Michigan ecosystem. The loss of Diporeia threatens the species that feed upon it and the whole food web.

History of Exotics in the Great Lakes

Sea lampreys entered the Great Lakes following construction of the Welland Canal in the 1950s, which provided oceangoing vessels with access to all the Great Lakes. More recent arrivals such as the zebra mussel, round goby, and ruffe entered the lake through ballast water releases. The current number of non-native species in the Great Lakes is over 170. Governmental efforts have found the need to use various integrated measures to control exotic species. Some include

use of barriers to prevent movement of the exotics into tributary rivers and streams, specially formulated chemicals to target and kill young and sterilization. Experience has shown that a number of tools need to be employed to yield any measure of control

LaMP 2000 recognized that ANS have caused irreparable harm to the ecosystem of Lake Michigan. Prevention of unintentional introductions of such species, not only in the Lake Michigan basin but throughout the Great Lakes, is therefore one of the most important actions for achievement of subgoal 4 - "All habitats are healthy, naturally diverse and sufficient to sustain viable biological communities."

Ballast Water Continues to be a Vector

Despite heightened public awareness and attempts by state and federal lawmakers to prevent introductions into the Great Lakes via ocean-going ships, ballast water discharges are still the largest contributor to new ANS introductions to the Great Lakes. One of the main reasons may be that more than 90% of ships coming into the Great Lakes report that they have no ballast on board (NOBOB) and are therefore exempt from current laws which require ships to exchange ballast at sea. Yet NOBOB ballast tanks retain residual volumes of unpumpable ballast water and sediment which may contain live aquatic organisms and resting stages - eggs, spores, and cysts - accumulated over numerous previous ballasting operations. While operating in the Great Lakes, NOBOB vessels take on water as ballast to maintain their trim and stability. This new ballast water mixes with the residual ballast water, mud, and associated organisms in these tanks and can later be discharged as the vessel takes on new cargo at a various ports along its route.

Pacific Ballast Water Poster

Shipping Federation of Canada Code of Best Practices for Ballast Water Management

1. Conduct ballast water management whenever practical
2. Regular inspection of tanks and removal of sediment
3. Use of ballast water exchange procedures as provided for in U.S. legislation
4. Record keeping and reporting according to Coast Guard regulations
5. Provide information for verifying the vessel's compliance
6. Minimizing ballast water uptake under the following conditions:
   - In areas identified in connection with toxic algal blooms, outbreaks of known populations of harmful aquatic organisms and pathogens, sewage outfalls and dredging activity
   - In darkness, when bottom dwelling organisms may rise in the water column
   - In very shallow water
   - Where a ship's propellers may stir up sediment
   - In areas with high levels of suspended sediments
   - In areas where harmful aquatic organisms or pathogens are known to occur
7. Disposal of sediments outside International ballast water management areas or as approved by port authorities
8. Support research sampling programs and analysis
9. Participate in standards development and treatment systems testing

In order to test the theory that NOBOB ships might still be a vector for introductions, the U.S. National Oceanic and Atmospheric Administration (NOAA) is heading a team of researchers in conducting a study of the sediment in the ballast tanks of NOBOB ships. Initial results of this study indicate that viable organisms can be found in ships which claim no ballast on board (*http://www.glerl.noaa.gov/res/Task_rpts/nsreid10-1.html*).

The implications of this study and other evidence of recent introductions, indicate that the National Invasive Species Act (NISA) regulations that require ships entering the Great Lakes to exchange ballast water at sea, are inadequate to prevent ANS introductions. The good news is that a bill to reauthorize NISA has been introduced in Congress.

International Developments

A new international convention to prevent the potentially devastating effects of the spread of harmful aquatic organisms carried by ships' ballast water has been adopted by the International Maritime Organization (IMO), the United Nations agency responsible for the safety and security of shipping and the prevention of marine pollution from ships. The instrument was adopted at an international conference held from 9 to13 February 2004 at IMO's London Headquarters.

The Convention will require all ships to implement a Ballast Water and Sediments Management Plan. All ships will have to carry a Ballast Water Record Book and will be required to carry out ballast water management procedures to a given standard. Existing ships will be required to do the same, but after a phase-in period. Parties to the Convention are given the option to take additional measures which are subject to criteria set out in the Convention and to IMO guidelines yet to be developed.

The GEF/UNDP/IMO Global Ballast Water Management Programme (GloBallast) is already providing technical support and expertise under a multi-million dollar project (GloBallast: *http://globallast.imo.org/*). The Convention will enter into force 12 months after ratification by 30 States, representing 35 per cent of world merchant shipping tonnage. The Conference was attended by representatives of 74 States, one Associate Member of IMO; and observers from two intergovernmental organizations and 18 non-governmental international organizations.

National Developments

National Aquatic Invasive Species Act of 2003

The National Aquatic Invasive Species Act of 2003 (NAISA) was introduced into the U.S. Senate and U.S. House of Representatives on March 5, 2003 by Senators Carl Levin (D-MI) and Susan Collins (R-ME), and Representatives Wayne Gilchrest (R-MD) and Vernon Ehlers (R-MI), NAISA (S. 525 and Hr.S. 1080 and 1081). The act re-authorizes and strengthens NISA, including ballast water regulations, and increases authorized funding in several categories of actions for

prevention and control of ANS. These actions include many that are critical to the Great Lakes and in particular for Lake Michigan because of the authorization in the act for continued upgrading and operation of the electrical barrier to fish passage in the Chicago Sanitary and Ship Canal. The Council of Great Lakes Governors sent a letter to Congress in support of the National Aquatic Invasive Species Act in November, 2003 on behalf of all the Governors. The letter can be read on the Council's web site at: *http://www.cglg.org/1projects/glwq/index.asp*. Although not yet passed into law as of April, 2004, further congressional action on the act is expected in 2004.

Lacey Act

A primary law in the United States to prevent the importation of injurious aquatic species is the Lacey Act Amendments which makes it unlawful to import, export, transport, buy or sell fish, wildlife and plants taken or possessed in violation of federal, state or tribal law. Interstate or foreign commerce in fish and wildlife taken or possessed in violation of foreign law also is illegal. Wildlife are considered injurious if their importation could impact negatively on agriculture, horticulture, forestry, the health and welfare of humans, and the welfare and survival of wildlife and wildlife resources in the U.S.

Declaring a species injurious involves a five-step process: Petition, Notice for Information, Record of Compliance, Proposed Rule, and Final Rule. The U.S. Fish and Wildlife Service may initiate a proposed rule without a petition or notice for information if the scientific data support a listing. The Lacey Act does not set a time frame for making "injurious" determinations. It typically takes 12 to 18 months to complete the evaluation and publish a Final Rule. Currently, 16 species, or groups of species, are listed as "injurious" under the provisions of the Lacey Act.

In the LaMP reporting period, all species of snakehead fish have been listed as injurious species under the Lacey Act. Bighead carp, silver carp and blackhead carp are currently being reviewed to determine whether these species should be added to the list.

The Shipping Federation of Canada has developed the *Code of Best Practices for Ballast Water Management*. The Code, recently enacted into Canadian law, is a condition of passage in the St. Lawrence Seaway for vessels entering into the Great Lakes and commits all vessels to ten practices for ballast water management.

Also, the Lake Carriers' Association and the Canadian Shipowners' Association have developed a voluntary plan to take action to reduce the risk of transferring aquatic nuisance species. The voluntary plan applies to U.S. and Canadian vessels that operate entirely within the Great Lakes and St. Lawrence Waterway. The plan entitled "*Voluntary Management Practices to Reduce the Transfer of Aquatic Nuisance Species within the Great Lakes by U.S. and Canadian Domestic Shipping*" identifies seven voluntary ballast water management practices recommended to be carried out by these ships. These correspond with the Canadian code.

State Efforts to Prevent the Spread of ANS

The states which share Lake Michigan's resources, (Illinois, Indiana, Michigan and Wisconsin) know all too well the negative effects that ANS have had on their industries, tourism and lifestyles. The states, collectively, are sharing the burden of controlling the ANS already established in Lake Michigan but they also share the desire to prevent further introductions. The following efforts are being conducted to prevent and control ANS on a state by state basis:

Illinois

Illinois is addressing ANS issues through a combination of management, research and outreach activities. These activities are being conducted by a variety of agencies and organizations throughout the state. Below is a sampling of projects currently taking place in Illinois.

Management

In 1998, Illinois developed a Comprehensive Management Plan for Aquatic Nuisance Species

to address the ANS issue. The three goals of the plan are 1) preventing new introductions of ANS, 2) limiting the spread of established ANS, and 3) abating harmful impacts from infestations of ANS. In 1999, the U.S. Fish and Wildlife Service approved the Plan for funding, and continues to provide baseline funds for its implementation. A complete copy of the plan can be seen at *http://www.iisgcp.org/il-ans/index2.html*.

Purple Loosestrife

Purple loosestrife is an invasive plant that can reduce biodiversity and ecosystem functioning of Illinois wetlands. The Illinois Natural History Survey has developed a project involving students in the biological control of purple loosestrife. This project involves the raising and release of Galerucella beetles (natural enemies of purple loosestrife) into wetlands infested with this noxious weed. The Illinois Natural History Survey has also been involved with creating a similar project for 4-H youth.

Dispersal Barrier

Prior to the 1880s, the Great Lakes and Mississippi River basins were separated by a sub-continental divide. Creation of the Chicago Sanitary and Shipping Canal, however, linked the waters of the two basins, and provided a pathway from one basin to another. In order to examine the feasibility of impeding movement of species between these two basins, an experimental dispersal barrier has been installed in the canal. The first phase of this barrier is electrical, and is designed to impede fish movement; additional technologies are planned for the future. Illinois has provided the $2 million non-federal cost share for a US Army Corps of Engineers project to construct a second electrical barrier. This barrier will be located approximately 1,000 feet downstream of Barrier I and is expected to be operational by fall 2004. Funding also has been obtained for the operation and maintenance of Barrier I and additional funding to upgrade Barrier I is being actively pursued. More on the dispersal barrier can be found at *www.seagrant.wisc.edu/outreach/nis/barrier/barrier.html*

The Migration rate of Asian carp species advancing up the Illinois River system is being monitored through a cooperative partnership consisting of the Illinois DNR, USFWS, USACOE, and the Metropolitan Water Reclamation District. In 2003 Asian carp were not found beyond an area approximately 30 miles downstream of the Barrier, which is near the Starved Rock State Park.

A Rapid Response Plan is being developed to address the scenario of Asian carp being found in close proximity of Barrier I prior to Barrier II becoming operational. When Barrier II becomes operational the Plan will be modified for treating the segment of the Cal-Sag Sanitation and Shipping Canal located between the two barriers.

To minimize the potential of Asian carp species being introduced into Lake Michigan the City of Chicago passed an ordinance banning the possession, importation, and sale of live Asian carp.

Research

Various researchers, including both investigators funded by Illinois-Indiana Sea Grant and ones working for the Illinois Natural History Survey, are examining the impacts and methods for control of ANS. Their research projects cover an array of topics ranging from testing effectiveness of the Chicago waterways dispersal barrier against Asian carp to developing methods for detection of the West Nile virus. Information garnered from this research will ultimately lead to a greater understanding of ANS, their role in our aquatic ecosystems, and the ways in which these species can be controlled.

Outreach

Illinois-Indiana Sea Grant's Outreach and Education programs and the Illinois Natural History Survey conduct a variety of outreach activities for the citizens of Illinois. These programs have been developed for a wide range of audiences including recreational water users, lake managers, aquarium hobbyists, teachers, students, bait shop owners, and commercial shippers. More information is available at *www.seagrantnews.org/extension*.

Indiana

The Indiana Department of Natural Resources recently selected D.J. Case & Associates from Mishawaka to provide facilitation of work group meetings and preparation of an Indiana State Aquatic Nuisance Species (ANS) Management Plan. The long-term plan addresses ecological and economic impacts of aquatic exotic species invasions in the waterways of Indiana and their potential threat to Lake Michigan, Lake Erie, and Ohio River basins.
Representatives from agencies, universities, industries, nongovernmental organizations, and citizens having an interest in ANS management formed a work group to provide input and review for the plan. The plan was recently approved by the National ANS Task Force. A copy of the plan can be found at *www.in.gov/dnr/invasivespecies/inansmanagementplan.html*.

Addition of ANS Fish to Illegal Possession List

The IDNR has statutory responsibility for regulating the importation of fish (IC 14-22-25-2) and regulates possession of live exotic nuisance species of fish (312 IAC 9-6-7). Listed fish are illegal to import, possess, or release into public waters without a permit. As of December 1, 2002, the department issued an emergency rule that modifies the list of fish species to include the following species:

- black carp (*Mylopharyngodon piceus*);
- bighead carp (*Hypophthalmichthys nobilis*);
- silver carp (*Hypophthalmichthys molitrix*);
- white perch (*Morone americana*); and
- snakehead fish (28 species in the Family *Channidae*).

Upon review of the results of public comment, the Natural Resources Commission adopted the changes as a permanent rule on May 20, 2003. The text of the rule can be found at *http://www.in.gov/dnr/invasivespecies/illpossession.html*.

Michigan

Michigan has been implementing its updated aquatic nuisance species management plan with a variety of actions relating to legislation, policy, education, information, research, and monitoring. A few highlights of the actions since LaMP 2002 are below. The web site for aquatic nuisance species actions in Michigan with additional information, including the updated management plan, can be found at: *www.michigan.gov/deq/ogl/ans*.

Ballast Water Reporting Program:

The Office of the Great Lakes continues to implement Michigan's ballast water management reporting program, established by legislation in 2001. Approximately 185 ships are registered on the program's web site, reporting compliance with best management practices for controlling aquatic nuisance species in ballast water. (See sidebar for the lists of BMPs). The Ballast Water Reporting program web site is at: *www.michigan.gov/deq/ballastwaterprogram*.

Aquatic Nuisance Species Research:

Six aquatic nuisance species research projects were funded through the Michigan Great Lakes Protection Fund, including a project on ballast water treatment for the Michigan Department of

Invasive Species Field Course

Inland Seas Education Association in Suttons Bay, MI conducted the second annual Invasive Species Field Course in June, 2003. This course provides an opportunity for agency staff, educators, business personnel and stakeholders from a variety of organizations to come together for 3 intensive days to learn about identification, effects, prevention, and control of invasive species in Lake Michigan waters. The web site for the ISEA is at www.greatlakeseducation.org

Environmental Quality. Other projects underway are studying Diporeia in Lake Huron and Lake Superior, use of pheromones in round goby, patterns of aquatic nuisance species along Great Lakes shorelines, and a model GIS assessment of aquatic nuisance species in Michigan. Results of these projects will be available in late 2004 and early 2005. Michigan Great Lakes Protection Fund project reports are available at *www.michigan.gov/deq/ogl/mglpf*

Aquatic Nuisance Species Awareness Week

The first Aquatic Nuisance Species Awareness Week was proclaimed by Governor Jennifer Granholm to be the first week of June, 2003. The week was filled with aquatic nuisance species prevention programs and activities, including a research symposium, production and airing of a segment on aquatic nuisance species for the TV program Michigan Out of Doors, and distribution of educational materials to marinas and bait shops statewide.

Aquatic Nuisance Species Council

Michigan's Aquatic Nuisance Species Council was created by Executive Order in November, 2002. The order implements a primary recommendation of Michigan's Aquatic Nuisance Species Management Plan Update. The purpose of the Council is to advise the Office of the Great Lakes and the Departments of Environment Quality, Natural Resources, Agriculture and Transportation on implementation of the updated state management plan for aquatic nuisance species. There are 9 members on the Council representing the above 4 state departments plus 4 at-large members appointed by the Governor on a 2 year rotating basis. The Director of the Office of the Great Lakes chairs the Council. The Council meets 2 times per year in the spring and fall. Meetings are open to the public and posted on the Council's web site which can be found by going to: *www.michigan.gov/deq/ogl/ans*

What are Asian Carp?

Asian carp are a significant threat to the Great Lakes because of their size, rapid reproduction, and ability to consume large amounts of food. Asian carp can grow to 100 pounds and up to four feet. They are well-suited to the cold water climate of the Great Lakes region, which is similar to their native Asian habitats. It is expected that they would compete for food with the valuable sport and commercial fish. If they entered the system, they would likely become a dominant species in the Great Lakes, replacing highly valued native species.

Silver Carp (*Hypophthalmichthys molitrix*)

Bighead and silver carp were imported into North America in the early 1970s to consume algae in ponds used by fish farmers in southern states. The carp had escaped into open waters of the Mississippi River basin by the 1980s and are now at the doorstep of Lake Michigan.

Bighead Carp (*Hypophthalmichthys nobilis*) photo David Rieks

Black Carp eat molluscs like snails and clams and were also imported by southern fish farmers to control snails that carry a disease that catfish are susceptible to. This species also escaped into the Mississippi River basin and poses a serious threat to native molluscs. The black carp has been listed as an injurious species under the Lacey Act and is illegal to possess in all of the Great Lakes states.

Black Carp (*Mylopharyngodon piceus*) photo by Leo G. Nico

Angler's Monitoring Network

An Angler's Monitoring Network for detecting new introduction of aquatic nuisance species fish species in Michigan has been created and

Snakeheads were probably imported as aquarium pets and for food.

implemented using funds from U.S. EPA's Great Lakes National Program office. The purpose is to augment monitoring for new invasions, with the goal of preventing effects of new aquatic nuisance species through rapid response. The network is an informal system of information, education and reporting that provides a mechanism for potentially all anglers in the state to monitor for and report on any new introduction of invasive fish to Michigan waters, acting as a potential additional 1.3 million sets of eyes (number of 2002 licensed anglers in Michigan). An information system has set up to inform anglers to watch for new invasive fish, provide a mechanism for angler identification of known and potential aquatic nuisance species, and to report suspected new introductions to appropriate contacts. The network's web site can be found at: *www.michigan.gov/deq-anglers-monitoring-network*

Wisconsin

The National ANS Task Force approved Wisconsin's Comprehensive State Management Plan for Aquatic Invasive Species (AIS) at their November 2003 meeting. The goals of Wisconsin's plan are designed to address different stages of the AIS invasion:

- The initial introductions of aquatic invasive species into Wisconsin waters from other parts of the continent or world;
- The spread of AIS populations to previously unaffected state waters; and
- The colonization of self-sustaining AIS populations within water bodies, including the harmful impacts resulting from such colonization

For detailed information about this plan visit *www.dnr.state.wi.us/org/water/wm/GLWSP/exotics/compplan_913_01.pdf*

Other projects being implemented by Wisconsin include the following:

- **Watercraft inspection program**—Sixteen field staff have been hired to conduct watercraft inspections and monitor for invasive species in the regions. In addition several inspectors will be hired in the summer of 2004 through Sea Grant to conduct inspections on the Great Lakes. There will be a statewide training effort in April to train all the watercraft inspectors.
- **Monitoring**—In past years most of the monitoring for invasive species has been Eurasian water milfoil and zebra mussels. The monitoring efforts will be expanded this year to include other problem species such as rusty crayfish and the fishhook and spiny water fleas. A statewide database is also being established to track the spread of invasive aquatic species.
- **Information/education and outreach efforts**—The DNR and UW-Extension have developed a number of new publications and posters for distribution to the public as well as revising some existing publications. A statewide boater survey was conducted in October/November 2003 to determine the effectiveness of the I&E program. The results will be available in the next month. A full-time staff person in Extension (funded by DNR) coordinates the I&E efforts.
- **Purple loosestrife biocontrol**—Volunteers have been instrumental in ensuring the success of this program. A full-time extension staff person (funded again through DNR) coordinates this effort.
- **Aquatic invasive species grants**—The Department is in the process of writing permanent rules to administer a cost share grant program with an annual appropriation of $500,000. Eligible projects will include plan development, invasive species surveys, watercraft inspections and development of educational materials. The Department will

present the draft rule to the Natural Resources Board in April 2004. Meanwhile, while the rules are in development, grant funding for these activities will be available through the existing Lake Planning and Protection Grants.

- **Volunteer watercraft inspection and monitoring efforts—**A full time UW-Extension staff person is in the process of setting up workshop around the state to train volunteers on watercraft inspections and monitoring to augment the Department's efforts. The purpose of the volunteer program is helping prevent the spread of aquatic invasives species through boater awareness and education.
- **Coastal Zone grant—**The Department received funding in FY 04 from the DOA Coastal Zone program to fund information & education and outreach efforts in the coastal counties adjacent to the Great Lakes. Most of those resources have already been spent on various activities such as: airing radio and TV public service announcements; producing signs for boat landings; developing wild cards, posters, brochures and publications; developing background video packages for TV stations; developing a special issue of Environmental Education News devoted to invasive species; conducting training sessions on invasive for Project WILD, Project WET and Project Learning Tree facilitators; and developing expanded and modified versions of the Great Lakes Park Packs for distribution to the DNR hatcheries in the coastal counties.
- **State Implementation Plan—**The Department received funding in FY04 to implement the State Implementation Plan for aquatic invasive species. The Watershed program will soon be deciding what elements of the program will be funded for FY 04.

Other Efforts to Prevent and Combat ANS in Lake Michigan

Great Lakes Panel on Aquatic Nuisance Species

The Great Lakes Panel on Aquatic Nuisance Species was officially convened in late 1991 by the Great Lakes Commission in response to section 1203 of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (P.L. 101-646). The Panel is directed to perform the following tasks:

- Identify Great Lakes priorities
- Assist / Make recommendations to a national Task Force on Aquatic Nuisance Species (also established via P.L. 101-646)
- Coordinate exotic species program activities in the region
- Advise public and private interests on control efforts
- Submit an annual report to the task force describing prevention, research and control activities in the Great Lakes Basin
- Develop a rapid response system for sighting reports.

The panel membership is drawn from U.S. and Canadian federal agencies, the eight Great Lakes states and the province of Ontario, regional agencies, user groups, local communities, tribal authorities, commercial interests, and the university/research community.

In 2003 and 2004, the 3 committees of the Panel; Information and Education, Research and Monitoring, and Legislation and Policy, all initiated an update of priorities for prevention and control of ANS in the Great Lakes region. The committee reports will be available on the Panel's web site in 2004. Further information about the Panel, its activities, and its membership can be found at: *http://www.glc.org/ans/*

Next Steps

- Reathorization of NISA by the National Aquatic Invasive Species Act
- Ensure full funding and research to keep Asian Carp from becoming established in Lake Michigan including the construction of a physical barrier in the Chicago Sanitary and Ship Canal
- Continue to educate people in the basin about the importance of preventing the introduction and spread of ANS. Pilot project for outreach to members of Asian community in Chicago and elsewhere who purchase live aquatic organisms for food
- Develop a rapid response system for sighting reports.
- Review and respond to the LMMCC ANS survey results and recommendations.

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